

Amendments to the Claims

**This listing of claims will replace all prior versions and listings of claims.**

1. (Currently Amended) An isolated polynucleotide comprising a member selected from the group consisting of:
  - (a) a polynucleotide encoding the polypeptide as set forth in Figure 1.
  - (b) a polynucleotide encoding the polypeptide expressed by the DNA contained in ATCC Deposit No. 97186;
  - (c) a polynucleotide capable of hybridizing to and which is at least 70% identical to the polynucleotide of (a); and
  - (d) a polynucleotide fragment of the polynucleotide of (a) or (b).
- 2-7. (Cancelled).
8. (Currently Amended) A receptor polypeptide selected from the group consisting of:
  - (i) a polypeptide having the deduced amino acid sequence of Figure 1 and fragments, analogs and derivatives thereof; and
  - (ii) a polypeptide encoded by the cDNA of ATCC Deposit No. 97186 and fragments, analogs and derivatives of said polypeptide.
9. (Canceled).
10. (Original) An antibody against the polypeptide of claim 8.
11. (Original) A compound which activates the polypeptide of claim 8.
12. (Original) A compound which inhibits activation the polypeptide of claim 8.
13. (Currently Amended) A method for the treatment of a patient having need to activate a G-protein Parathyroid Hormone (PTH) ~~PTH~~ receptor ~~receptor~~ comprising: administering to the patient a therapeutically effective amount of the compound of claim 11.

14. (Currently Amended) A method for the treatment of a patient having need to inhibit a PTH receptor ~~receptor~~ comprising: administering to the patient a therapeutically effective amount of the compound of claim 12.

15. (Original) The method of claim 13 wherein said compound is a polypeptide and a therapeutically effective amount of the compound is administered by providing to the patient DNA encoding said agonist and expressing said agonist in vivo.

16. (Original) The method of claim 14 wherein said compound is a polypeptide and a therapeutically effective amount of the compound is administered by providing to the patient DNA encoding said antagonist and expressing said antagonist in vivo

17. (Original) A method for identifying compounds which bind to and activate the receptor polypeptide of claim 8 comprising:

contacting a cell expressing on the surface thereof the receptor polypeptide, said receptor being associated with a second component capable of providing a detectable signal in response to the binding of a compound to said receptor polypeptide, with a compound under conditions sufficient to permit binding of the compound to the receptor polypeptide; and

identifying if the compound is capable of receptor binding by detecting the signal produced by said second component.

18. (Canceled).

19. (Currently Amended) A process for diagnosing in a patient a disease or a susceptibility to a disease related to an under-expression of the polypeptide of claim 8 comprising:

determining the presence of a mutation in the nucleic acid sequence encoding the polypeptide of claim 8 in a sample derived from a patient.

20. (Canceled).

21. (New) An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:
- (a) a protein consisting of amino acid residues 1 to 541 of SEQ ID NO:2;
  - (b) a protein consisting of amino acid residues 2 to 541 of SEQ ID NO:2;
  - (c) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 30 contiguous amino acid residues of SEQ ID NO:2; and
  - (d) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.
22. (New) The antibody or fragment thereof of claim 21 that specifically binds protein (a).
23. (New) The antibody or fragment thereof of claim 21 that specifically binds protein (b).
24. The antibody or fragment thereof of claim 21 that specifically binds protein (c).
25. (New) The antibody or fragment thereof of claim 21 that specifically binds protein (d).
26. (New) The antibody or fragment thereof of claim 22 that specifically binds protein (b).
27. (New) The antibody or fragment thereof of claim 22 wherein said protein bound by said antibody or fragment thereof is glycosylated.
28. (New) The antibody or fragment thereof of claim 22 which is a human antibody.
29. (New) The antibody or fragment thereof of claim 22 which is a polyclonal antibody.

30. (New) The antibody or fragment thereof of claim 22 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

31. (New) The antibody or fragment thereof of claim 22 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

32. (New) The antibody or fragment thereof of claim 22 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

33. (New) An isolated cell that produces the antibody or fragment thereof of claim 22.

34. (New) A hybridoma that produces the antibody or fragment thereof of claim 22.

35. (New) A method of detecting G-Protein Parathyroid Hormone Receptor HLTDG74 (G-protein PTH receptor) in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 22; and
- (b) detecting the G-protein PTH receptor in the biological sample.

36. (New) The method of claim 35 wherein the antibody or fragment thereof is a polyclonal antibody.

37. (New) An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

(a) a protein comprising the amino acid sequence of amino acid residues 1 to 541 of SEQ ID NO:2;

(b) a protein comprising the amino acid sequence of amino acid residues 2 to 541 of SEQ ID NO:2;

(c) a protein comprising the amino acid sequence of at least 30 contiguous amino acid residues of SEQ ID NO:2; and

(d) a protein comprising the amino acid sequence of at least 50 contiguous amino acid residues of SEQ ID NO:2;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

38. (New) The antibody or fragment thereof of claim 37 obtained from an animal immunized with protein (a).

39. (New) The antibody or fragment thereof of claim 37 obtained from an animal immunized with protein (b).

40. (New) The antibody or fragment thereof of claim 37 obtained from an animal immunized with protein (c).

41. (New) The antibody or fragment thereof of claim 37 obtained from an animal immunized with protein (d).

42. (New) The antibody or fragment thereof of claim 37 which is a monoclonal antibody.

43. (New) The antibody or fragment thereof of claim 37 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a humanized antibody;

- (d) a single chain antibody; and
- (e) a Fab fragment.

44. (New) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of amino acid residues 1 to 541 of SEQ ID NO:2;
- (b) a protein consisting of amino acid residues 2 to 541 of SEQ ID NO:2;
- (c) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 30 contiguous amino acid residues of SEQ ID NO:2; and
- (d) a protein consisting of a portion of SEQ ID NO:2, wherein said portion comprises at least 50 contiguous amino acid residues of SEQ ID NO:2.

45. (New) The antibody or fragment thereof of claim 44 that specifically binds protein (a).

46. (New) The antibody or fragment thereof of claim 44 that specifically binds protein (b).

47. (New) The antibody or fragment thereof of claim 44 that specifically binds protein (c).

48. (New) The antibody or fragment thereof of claim 44 that specifically binds protein (d).

49. (New) The antibody or fragment thereof of claim 45 that specifically binds protein (b).

50. (New) The antibody or fragment thereof of claim 45 wherein said protein bound by said antibody or fragment thereof is glycosylated.

51. (New) The antibody or fragment thereof of claim 45 which is a human antibody.

52. (New) The antibody or fragment thereof of claim 45 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

53. (New) The antibody or fragment thereof of claim 45 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

54. (New) The antibody or fragment thereof of claim 45 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

55. (New) An isolated cell that produces the antibody or fragment thereof of claim 45.

56. (New) A hybridoma that produces the antibody or fragment thereof of claim 45.

57. (New) A method of detecting G-protein PTH receptor in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 45; and
- (b) detecting the G-protein PTH receptor in the biological sample.

58. (New) An isolated antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

(a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186;

(b) a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186;

(c) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186, wherein said portion comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186; and

(d) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186, wherein said portion comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186.

59. (New) The antibody or fragment thereof of claim 58 that specifically binds protein (a).

60. (New) The antibody or fragment thereof of claim 58 that specifically binds protein (b).

61. (New) The antibody or fragment thereof of claim 58 that specifically binds protein (c).

62. (New) The antibody or fragment thereof of claim 58 that specifically binds protein (d).

63. (New) The antibody or fragment thereof of claim 59 that specifically binds protein (b).

64. (New) The antibody or fragment thereof of claim 59 wherein said protein bound by said antibody or fragment thereof is glycosylated.

65. (New) The antibody or fragment thereof of claim 59 which is a human antibody.

66. (New) The antibody or fragment thereof of claim 59 which is a polyclonal antibody.

67. (New) The antibody or fragment thereof of claim 59 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

68. (New) The antibody or fragment thereof of claim 59 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

69. (New) The antibody or fragment thereof of claim 59 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

70. (New) An isolated cell that produces the antibody or fragment thereof of claim 59.

71. (New) A hybridoma that produces the antibody or fragment thereof of claim 59.

72. (New) A method of detecting G-protein PTH receptor in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 59; and
- (b) detecting the G-protein PTH receptor in the biological sample.

73. (New) The method of claim 72 wherein the antibody or fragment thereof is a polyclonal antibody.

74. (New) An isolated antibody or fragment thereof obtained from an animal that has been immunized with a protein selected from the group consisting of:

(a) a protein comprising the amino acid sequence of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186;

(b) a protein comprising the amino acid sequence of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186;

(c) a protein comprising the amino acid sequence of at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186; and

(d) a protein comprising the amino acid sequence of at least 50 contiguous amino acid residues the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186;

wherein said antibody or fragment thereof specifically binds to said amino acid sequence.

75. (New) The antibody or fragment thereof of claim 74 obtained from an animal immunized with protein (a).

76. (New) The antibody or fragment thereof of claim 74 obtained from an animal immunized with protein (b).

77. (New) The antibody or fragment thereof of claim 74 obtained from an animal immunized with protein (c).

78. (New) The antibody or fragment thereof of claim 74 obtained from an animal immunized with protein (d).

79. (New) The antibody or fragment thereof of claim 74 which is a monoclonal antibody.

80. (New) The antibody or fragment thereof of claim 74 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a humanized antibody;
- (d) a single chain antibody; and
- (e) a Fab fragment.

81. (New) An isolated monoclonal antibody or fragment thereof that specifically binds to a protein selected from the group consisting of:

- (a) a protein consisting of the full-length polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186;
- (b) a protein consisting of the mature form of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186;
- (c) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186, wherein said portion comprises at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186; and
- (d) a protein consisting of a portion of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186, wherein said portion comprises at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA contained in ATCC Deposit Number 97186.

82. (New) The antibody or fragment thereof of claim 81 that specifically binds protein (a).

83. (New) The antibody or fragment thereof of claim 81 that specifically binds protein (b).

84. (New) The antibody or fragment thereof of claim 81 that specifically binds protein (c).

85. (New) The antibody or fragment thereof of claim 81 that specifically binds protein (d).

86. (New) The antibody or fragment thereof of claim 82 that specifically binds protein (b).

87. (New) The antibody or fragment thereof of claim 82 wherein said protein bound by said antibody or fragment thereof is glycosylated.

88. (New) The antibody or fragment thereof of claim 82 which is a human antibody.

89. (New) The antibody or fragment thereof of claim 82 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a humanized antibody;
- (c) a single chain antibody; and
- (d) a Fab fragment.

90. (New) The antibody or fragment thereof of claim 82 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

91. (New) The antibody or fragment thereof of claim 82 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.

92. (New) An isolated cell that produces the antibody or fragment thereof of claim 82.

93. (New) A hybridoma that produces the antibody or fragment thereof of claim 82.

94. (New) A method of detecting G-protein PTH receptor in a biological sample comprising:

- (a) contacting the biological sample with the antibody or fragment thereof of claim 82; and
- (b) detecting the G-protein PTH receptor in the biological sample.

95. (New) An isolated antibody or fragment thereof that specifically binds G-protein PTH receptor expressed on the surface of a cells in a cell culture wherein the cells in said cell culture comprise a polynucleotide encoding amino acids 1 to 541 of SEQ ID NO:2 operably associated with a regulatory sequence that controls the expression of said polynucleotide.

96. (New) The antibody or fragment thereof of claim 95 which is a monoclonal antibody.

97. (New) The antibody or fragment thereof of claim 95 which is a human antibody.

98. (New) The antibody or fragment thereof of claim 95 which is selected from the group consisting of:

- (a) a chimeric antibody;
- (b) a polyclonal antibody;
- (c) a humanized antibody;
- (d) a single chain antibody; and
- (e) a Fab fragment.

99. (New) The antibody or fragment thereof of claim 95 wherein said antibody or fragment thereof specifically binds to said protein in a Western blot.

100. (New) The antibody or fragment thereof of claim 95 wherein said antibody or fragment thereof specifically binds to said protein in an ELISA.